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CERTIFICATE

This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that annexed is a true copy of the Provisional Specification as filed on 15 May 2003 with an application for Letters Patent number 525896 made by Wayne Peter KILLIP.

Dated 9 June 2004.

Neville Harris
Commissioner of Patents, Trade Marks and Designs

COMMISSIONER OF PATENTS, TRADEMARKS & DESIGNS
NEW ZEALAND

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525896

atents Form # 4

NEW ZEALAND

Patents Act 1953

PROVISIONAL SPECIFICATION

Title: Shaft Support

I, ***Killip, Wayne Peter,***
Nationality: *A New Zealand citizen*
Address: *207B Woodlands Park Road, Titirangi, Auckland, New Zealand,*
do hereby declare this invention to be described in the following statement :

Shaft Support

FIELD OF THE INVENTION

This invention relates to a shaft support, in particular, but not exclusively to a shaft support for securing a weather screen in place.

BACKGROUND

Increasingly weather screens, some in the form of umbrellas, are used in outdoor settings, for example street-side cafés, restaurant lawns, fairs, picnics and barbecues. They provide shelter from the sun or rain, and often also complement the appearance of a table setting, or even provide a means for displaying advertising.

Due to the large size of many of these umbrellas once deployed, they are often difficult to hold steady in even mild wind conditions. Most commonly very heavy and/or large base blocks or base members are used to hold the main shaft or pole of the umbrella. Because of the temporary or collapsible nature of umbrellas, they are items that are put up, moved around and put away regularly. These heavy or cumbersome bases are often the most difficult items to handle.

Sometimes umbrellas are held steady by inserting the lower end of the main pole into the ground. This is often difficult to do, and in any case the ground often provides a poor support for the umbrella.

The forces acting on the body of the umbrella are often significant, and a hole in the ground or base member is usually inadequate to support an umbrella in even light wind conditions. Often the umbrellas that are used with an item of furniture, pass through a designated aperture in the furniture, and can gain some support from the furniture.

However, umbrellas that are used with items of furniture in this way, even when heavy base blocks are used, are still prone to a degree of instability. Umbrellas can fly right out of a table setting in a gust of wind, or blow over.

Furthermore, umbrellas used in conjunction with tables are cumbersome to move. For example, if a street café owner wants to move a table around, he must struggle to move the

table, the umbrella, and its base at the same time, or else dis-assemble the three items and move them separately. This process is difficult and may damage one or other of the table, umbrella or base, and in any event it is time consuming.

Poorly secured umbrellas can also become a danger to those around them. Umbrellas lifted or pushed over by a gust of wind can be quite dangerous to those in the vicinity.

In addition, the commonly used base blocks used with umbrellas can be unsightly and intrusive in a table setting. They can severely restrict foot-room under a table, and can make it difficult to stow chairs under a table when the table is not in use.

Another problem experienced with umbrellas and furniture is that as the sun moves, or the direction of rain changes, it is often desirable to alter the location of the umbrella relative to the item of furniture. This has been addressed to some extent by having a pivoting joint part way up an umbrella shaft, so that the canopy of the umbrella can be tilted. This solution is often inadequate in providing the optimum protection to the users of a piece of furniture.

OBJECT

It is therefore an object of the present invention to provide an apparatus which will at least go some way towards making it simpler to secure a weather screen, for example an umbrella especially when used with items of furniture, or at least provide the public with a useful choice.

STATEMENTS OF THE INVENTION

Accordingly, in a first aspect, the invention may broadly be said to consist in a shaft support for an umbrella, the shaft support having shaft clamping means, and attachment means adapted to attach the shaft support to an item of furniture.

Preferably the clamping means includes a tube, and a means to grip an umbrella pole or shaft which is inserted within the tube. The term "tube" used herein is not intended to be limited to cylindrical tubes or tubes of substantially uniform wall thickness.

While the tube can have a round, square or rectangular cross section, it is preferred that the tube has a substantially triangular cross section.

Preferably the means to grip an umbrella pole includes at least one mechanism to exert pressure on a side of the pole to push the pole into contact with two or more internal sidewalls of the tube.

More preferably still the said internal sidewalls are provided with reinforcing members.

Even more preferably the reinforcing members form part of the attachment means.

Preferably the means to grip an umbrella pole within the tube includes at least one threaded shaft or rod, which itself engages with a mating thread associated with the tube.

Preferably the end of the threaded shaft which contacts or grips a shaft incorporates a resilient member.

Preferably the thread associated with the tube further passes through one of the attachment means, since such an arrangement provides a longer and therefore stronger threaded portion.

Preferably the threaded shaft or rod, which engages with the mating thread associated with the tube, is further provided with a knob or handle to enable a user to rotate the shaft or rod and thereby exert pressure onto the side of a pole of an umbrella, to clamp it within the tube.

Optionally the means to grip an umbrella pole includes at least one lever and cam arrangement to exert pressure onto the side of the pole of an umbrella, to clamp it within the tube.

Preferably the means to rigidly attach the shaft support to an item of furniture includes at least one strut.

Preferably the struts are provided with means to secure one end of each strut to an item of furniture, for example, but not limited to, drilled holes in a tab portion for the insertion of fasteners, for example screws.

Preferably the struts are rigidly attached to the clamping means.

Preferably the rigid attachment of the struts to the clamping means is produced by welding.

Optionally the struts are pivotally attached to the clamping means and are arranged to secure the clamping means rigidly.

Optionally the means to rigidly attach the shaft support to an item of furniture includes gusset pieces which are attachable to both the clamping means and to an item of furniture.

Optionally the means to rigidly attach the shaft support to an item of furniture includes a substantially rigid plate or plates securely attached to the clamping means, by welding for example.

Optionally the shaft support, including means to rigidly attach it to an item of furniture, is made from one main structural member, the main structural member being made by a casting, forging or forming process, for example.

The shaft support can be made from plastics material, however, preferably the shaft support is primarily made from a metal or metal alloy.

Optionally the shaft support is made from a combination of the above mentioned materials.

Preferably the shaft support is provided with corrosion protection. This can be achieved using paint, galvanising, or anodizing for example.

In a second aspect, the invention may broadly be said to consist in an item of furniture as specified herein, incorporating a shaft support as also specified herein.

Optionally an aperture in the item of furniture, need not necessarily be substantially centrally located, within for example a table top. With such a non-centred arrangement the item of furniture and umbrella can be re-orientated to achieve optimum protection for the users as the sun moves or the direction of rain changes. Such an arrangement is particularly useful if the umbrella is not a hinged umbrella. It will be realised that such a process will be far harder to achieve using some of the prior art arrangements, for example if a heavy base member were used to support the umbrella.

In a third aspect, the invention may broadly be said to consist in an item of furniture as specified herein, incorporating a shaft support and an umbrella, as also specified herein.

DESCRIPTION

The invention may also broadly be said to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more of the parts, elements or features, and where specific integers are mentioned herein which have known equivalents, such equivalents are incorporated herein as if they were individually set forth.

One preferred form of the invention will now be described, by way of example only, with reference to the accompanying drawings in which,

FIGURE 1 is a perspective view of a shaft support assembly,

FIGURE 2 is a side elevation of the shaft support assembly,

FIGURE 3 is a cross sectional view through the clamping member of the shaft support assembly, and

FIGURE 4 is a perspective view of an item of furniture fitted with the shaft support assembly, complete with an umbrella installed.

With reference to **Figures 1 and 2**, a shaft support assembly (10) is manufactured comprising at least a clamping means (11) and three struts (13) to secure the shaft support assembly (10) to an item of furniture.

The clamping means (11) further comprises a substantially triangular cross sectioned tube (15), and a threaded rod (17). The threaded rod (17) engages with a mating thread (19) formed in one of the substantially flat side walls of the tube (15). The mating thread (19) continues through the thicker material of one of the struts (13) for additional strength. The threaded rod (17) is also provided with a knob (21) to allow a user to wind the threaded rod (17) in or out of the tube (15) with greater ease.

The struts (13) are welded (23) to the exterior flat sections of the sidewalls of the tube (15) and are attached substantially at the mid section of the tube (15). The struts (13) are further provided with feet (25), each of the feet (25) having three parallel drilled holes (27) for the

insertion of bolts or screws. The top of the tube (15) is situated below the plane swept out by the feet (25) of the struts (13) in the support's (10) normal attitude of use.

With reference to **Figure 3**, the pole of an umbrella (31) can be inserted into the clamping means (11) and secured within the clamping means (11). It is secured by winding the threaded rod (17) in so that the free end (33) of the rod (17) pushes against the pole (31) thereby clamping the pole (31) between the rod (17) and the two inside flat faces (35) and (37) of the tube (15).

The inventor has found that the triangular cross sectioned tube (15) as shown in Figure 3 produces a very effective clamp for this purpose. The pole (31) of the umbrella is held securely along the length of the clamp (11) since it is effectively wedged into a corner along the length of tube (15). This has significant advantages when securing an umbrella pole which has a tendency to rock back and forth due to wind loads on the canopy of the umbrella.

With reference to **Figure 4**, a shaft support assembly (10) is shown fitted to an outdoor table (39). The pole (31) of the umbrella (41) passes through an aperture (43) substantially centrally located within the table top (45) and the pole (31) is rigidly secured in the shaft support assembly (10). No additional base is required for the umbrella, and neither is it necessary to engage the bottom of the pole (31) with the ground.

The assembly of the table (39), shaft support assembly (10) and umbrella (41) has excellent resistance to light winds, can easily be moved as an assembly, and still has good foot room under the table. As discussed earlier, if the hole on the table top, and the support assembly (10) were situated offset from the centre of the table, the table could be orientated to give the best shelter, depending on the angle of the sun, or the direction of the rain.

ADVANTAGES

Thus it can be seen that at least the preferred form of the invention provides a shaft support suitable to more easily secure an umbrella to an item of furniture, such that the umbrella has good stability.

The item of furniture complete with erected umbrella can be moved more easily, and foot-room under the furniture can be preserved. Similarly it is easier to stow seats under a table incorporating the invention, as the seats no longer conflict with a large umbrella base block.

Also, a table and umbrella incorporating the invention can be said to have improved appearance since no base block is required and the shaft support is largely hidden under the table,

And, safety can be enhanced in that the chance of an umbrella being blown out of a table setting, or being blown over, in the wind is reduced. Stability of the table can also be improved since the clamped umbrella shaft can act as an extra leg for the table.

PIPERS
Attorneys for:
Wayne Peter KILLIP

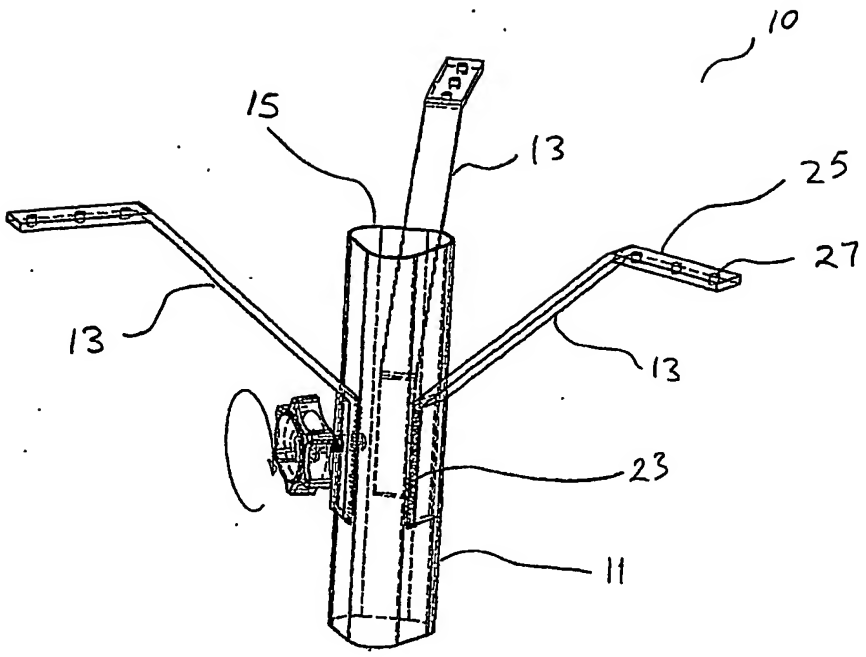

FIGURE 1

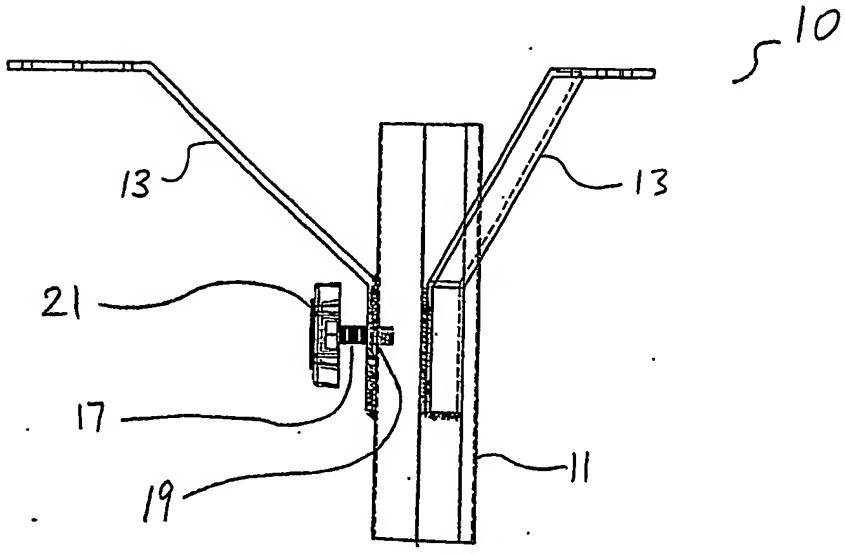

FIGURE 2

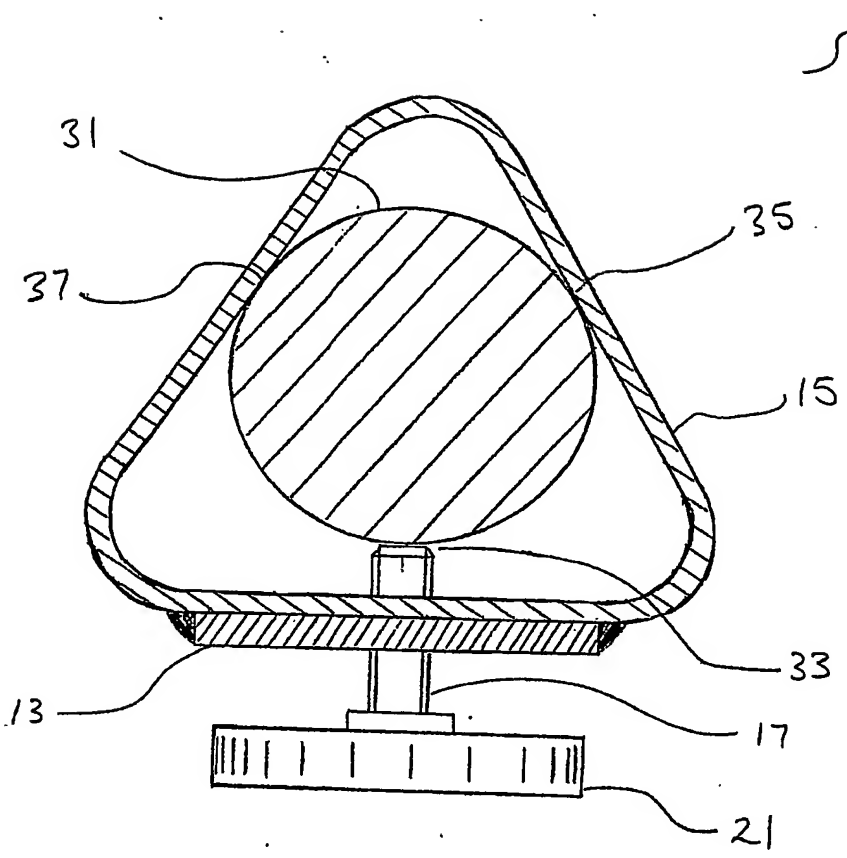

FIGURE 3

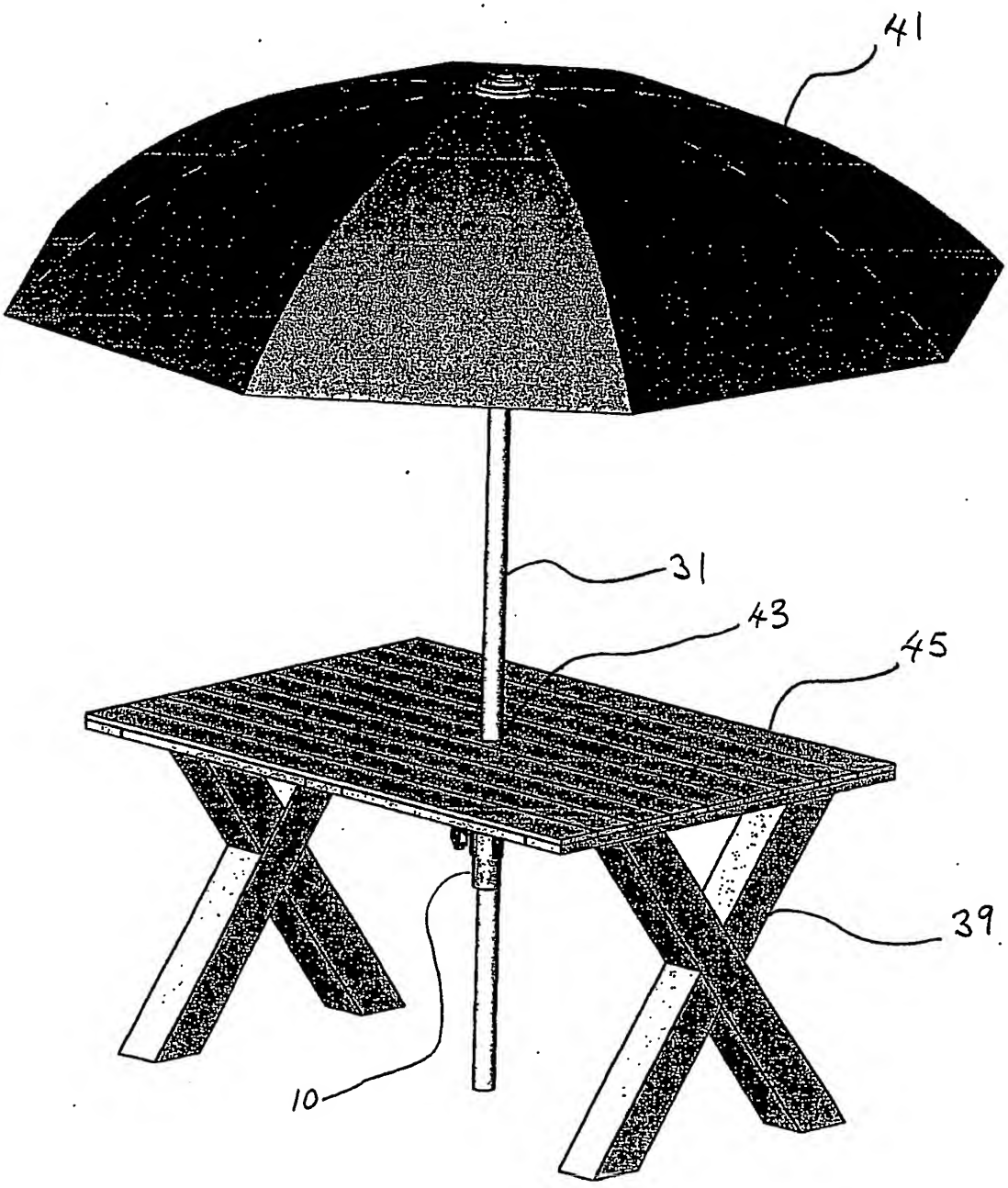

FIGURE 4